

ducted in the Botanical Laboratory of Cornell University with the assistance of Mr. W. A. Henry, is recorded by Prof. Prentiss. All the experiments made in an ordinarily free atmosphere resulted in no harm to the insects; the others showed no ill results except where the insects were confined in an unnaturally moist atmosphere, as that of a Wardian case or bell glass—conditions which will kill and render moldy almost any insects without the application of yeast, but must be trebly fatal to delicate-skinned insects when these are, in addition, covered with any sticky substance. Two of the experiments showed that where mold appeared it was independent of the yeast application.

Prof. Prentiss further remarks: "The result of these experiments, as a whole, as also many others not here recorded which have a more or less direct bearing upon the subject under consideration, indicate plainly that yeast cannot be regarded as a reliable remedy against such insects as commonly affect plants cultivated in greenhouses, rooms and parlors. Moreover, it is more than probable that the yeast would injure many kinds of plants, especially those with delicate foliage, by spotting and soiling the leaves, and inducing fungoid growths upon the jars or soil in which the plants are grown. Indeed, in most greenhouses at the present time, it is not so much a question of keeping down injurious insects, as it is the suppression of molds and mildews of various kinds. The verbena rust only need be named as an illustration of this point."

FOOD HABITS OF THE LONGICORN BEETLES OR WOOD BORERS.

BY THE EDITOR.

(Continued from p. 239.)

LAMIIDÆ.

Monilema. The species of this genus are reported to feed on various species of Prickly Pear, and it might be inferred, therefore, that the larvæ live on the roots of these plants.

Psenocerus supernotatus (Say), is the "American Currant Borer" (Fitch, 3rd Rep., pp. 98-105); bores also in branches of Apple trees (Packard Guide, p. 500).

Monohammus titillator (Oliv.), boring in the bark

of *Pinus sylvestris* at St. Louis, the perfect insect appearing May 21st (C. V. Riley).

Monohammus scutellatus (Say), boring in pine wood in a similar manner to *M. confusor* (Fitch, 4th Rep., pp. 24-25).

Monohammus confusor Kirby, boring cylindrical holes in the interior of the wood of pine trees, chiefly of decaying and dead trees (Fitch, 48th Rep., pp. 21-24).

Dorcascema wildii Uhler.

Dorcascema alternatum (Say). These two species occur on Mulberry and Osage Orange, and the larvæ live, no doubt, in the roots of these plants (C. V. Riley).

Dorcascema nigrum (Say), breeds in Hickory (Dr. F. Hodge, Buffalo, N. Y., teste A. S. Fuller).

Hetamis cineria (Oliv.). On *Morus rubra* (Halde-mann, Tr. Am. Phil. Soc., X, 54).

Goes tigrinus (De G.), greatly injuring Hickory trees by boring in the green wood (Fitch, 1st Rep., pp. 146-151; 3d Rep. pp. 120-121).

Goes pulcher (Hald.). "Scarce, but a few are found every season in the Shag-bark and Pignut hickory, June and July" (Dr. T. Hodge, Buffalo, N. Y., teste A. S. Fuller).

Goes pulverulentus (Hald.). "This insect is very destructive to living Beech trees. It bores into those branches which are about three inches in diameter. The length of the channel is about eight inches" (Dr. G. H. Horn, Proc. Ent. Soc., Phil. 1., pp. 43-44).

Goes debilis Lec. "Very bad in trunks of Swamp Oak" (C. V. Riley); bores the Oak, especially unhealthy trees (Dr. F. Hodge, Buffalo, N. Y., teste A. S. Fuller); is no doubt a borer in the trunk of White Oak (Fitch, 5 Rep., p. 12).

Plectrodera scalator (Fabr.). Breeds in the Willow, especially the smaller species growing along the banks of streams in the Western States (C. V. Riley); bores in the roots and lower part of the trunk of Cottonwood trees in Texas (E. A. Schwarz).

Acanthoderes 4-gibbus (Say),* bores in dead twigs of Oak, Beech, Hackberry (Schwarz).

Leptostylus aculifer (Say). The larva bores into oaks and occasionally apple trees (A. E., I., p. 225); working under the bark of apple trees, making broad, irregular burrows, causing the bark to raise, discolor and die. Also reported from Tallahassee, Indian Territory, as boring in Osage Orange (C. V. Riley).

Leptostylus biustus (Lec.), bred from a dried up pomegranate (Tallahassee, Florida; C. V. Riley).

Leptostylus commixtus (Hald.), the larva probably having the same habits as *L. aculifer* (Fitch, 4th Rep., p. 26).

Leptostylus macula (Say), larva under the bark of old decaying Butternut trees (Fitch, 3d Rep., p. 144).

Sternidius alpha (Say), boring in dead apple twigs, the perfect insect issuing in May (C. V. Riley).

* The larva of the South American species, *Stirostoma depressum*, which we lately received from Param, Brazil, is reported to be very injurious to the Cocoanut tree by boring in the stem.

- Sternidius xanthoxyli* (Shimer), boring in dead wood of Prickly Ash (Shimer, Trans. Am. Ent. Soc. 1868, pp. 7-8).
- Liopus crassulus* (Lec.), boring in dead twigs of *Celtis texana* (E. A. Schwarz).
- Liopus quercus* Fitch. Fitch feels assured that it lives at the expense of the Red and White Oak (5 Rep., p. 16).
- Hyperplatys aspersus* (Say), boring in dry twigs of *Populus monilifera* at Columbus, Texas; perfect insect to be found throughout spring and summer (Schwarz).
- Hyperplatys maculatus* (Hald.), "in apple twigs, Ithaca, N. Y." (Riley); in dry twigs of *Populus tremuloides*, Marquette, Mich. (Schwarz).
- Urographis triangulifera* (Hald.), boring under bark of *Celtis texana*, but only of trees already injured by other causes. Columbus, Texas (Schwarz).
- Urographis fasciata* (De G.), "feeding on and destroying the inner bark of the Black Oak, *Quercus tinctoria*, of newly-felled trees, forming large tracks therein, which are filled with worm dust," the perfect insect appearing in June (Fitch, 5th Rep., p. 14); from hickory stump (marginal note by B. D. W.); larva found in a rotten oak stump (C. V. Riley).
- Acanthocinus nodosus* (Fabr.), "found under the bark of Pine from June to September" (Bland, Proc. Ent. Soc. Phil. I., p. 97); larva mining under the bark of felled Yellow Pine, near Tampa, Fla., the perfect insect appearing in April (E. A. Schwarz).
- Hoplosia nubila* Lec. Larva boring in dry Beech twigs, Detroit, Mich. (E. A. Schwarz).
- Eupogonius tomentosus* Hald., larva mining the wood of the Pine; imago appearing in July (Fitch, 4th Rep., p. 26); larva boring in tender twigs of felled Yellow Pine (E. A. Schwarz).
- Eupogonius vestitus* (Say), bred from Hickory (C. V. Riley).
- Oncideres putator* Thoms., girdling Mesquite twigs and larva boring in the twigs. From Arizona (C. V. Riley).
- Oncideres cingulatus* (Say). The "Twig-girdler" often referred to in the books. Its habits were first described by Haldeman (*Pennsylvania Farm Journal*, vol. I., p. 34, and Tr. Am. Phil., X., 52, 1847). Breeds in the Hickory, Apple and Pear tree.
- Ataxia crypta* (Say), boring in dry cotton stalks, Texas (Riley); boring in dry twigs of Box Elder and Hackberry, Columbus, Texas (E. A. Schwarz).
- Hippopsis lemniscata* (Fabr.), the perfect insect, together with full-grown larva, found in cane of *Ambrosia*, in June, in Missouri (C. V. Riley).
- Saperda calcarata* Say, the larvæ of this species "with those of the broad-necked *Prionus* have almost entirely destroyed the Lombardy Poplar in this vicinity. They live also in the trunks of our American Poplars" (Harris, p. 107); Am. Linden (H. G. Hubbard).
- Saperda candida* Fabr. The well-known Apple-tree borer. "The trees and shrubs principally attacked by this borer are the Apple tree, the Quince, Mountain Ash, Hawthorn and other thorn bushes, the June-berry or Shad Bush, and other kinds of *Amelanchier* and *Aronia*" (Harris, p. 108, followed by a full account of the habits of the larva); attacks not only the wild and cultivated Apple (*Pyrus*) but also the Thorn (*Crataegus*), the Mountain Ash (*Pyrus americana*), the common Quince (*Cydonia vulgaris*) and the ornamental sorts (*C. japonica*, etc.).
- Saperda Fayi* Bland, lives in the Hawthorn and appears to prefer the low growing bushes. The grubs cause the branches to become gnarled and covered with knot-like excrescences. June and July (Dr. F. Hadge, Buffalo, N. Y., teste A. S. Fuller); "Attacks the limbs and skin of the wild thorn (*Crataegus crus-galli* and *C. tomentosa*) creating a gall-like, gnarly swelling" (C. D. Zimmermann, Can. Entom. 1878, p. 220).
- Saperda vestita* Say, very injurious to the European linden in Cambridge, Mass. and Philadelphia, Pa. (Harris, p. 110); boring at the base of young European Linden and gouging two parallel rings around the trunk which form annular swellings (C. V. Riley).
- Saperda discoidea* Fabr., larva bores in Hickory in company with *Cyllene pictus* (C. V. Riley); boring in Hickory trunks (Fitch, 3d Rep., p. 122).
- Saperda tridentata* Oliv., greatly injurious to Elm in Boston, Mass.; "Very rarely did they [the larvæ] seem to have penetrated far into the wood itself, but their operations were mostly confined to the inner layers of the bark, which thereby became loosened from the wood beneath" (Harris, pp. 112-113); "consuming the inner bark of the Slippery Elm (*Ulmus fulva*) in decaying and dead trees" (Fitch, 5th Rep., pp. 59-60).
- Saperda puncticallis* Say, found on Poison Ivy, *Rhus toxicodendron* (C. D. Zimmermann, Can. Ent., 1878, p. 220).
- Saperda lateralis* Fabr., "mining the inner bark of dead trees and logs of the common Elm (Fitch, 5 Rep. pp. 60-61).
- Saperda moesta* Lec., bores the Poplar, selecting the smaller branches (Dr. F. Hadge, Buffalo, N. Y., teste A. S. Fuller).
- Mecas inornata* (Say), bores in the roots and lower part of the stems of *Helonium tenuifolium*, the perfect insect appearing from May till July (Columbus, Texas, E. A. Schwarz).
- Obera bimaculata* (Oliv.) (*tripunctata*, Fabr.), the larva burrowing in the stems of the Blackberry and Raspberry (Harris, p. 114). Pupates in the root, beneath the surface of the ground.
- Obera schaumii* (Lec.), larva boring in the twigs of Cotton wood making a very smooth cylindrical burrow, the perfect insect appearing in the middle of June. St. Louis, Mo (C. V. Riley).
- Obera mandarina* (Fabr.), larva boring in the thin twigs of *Populus monilifera* at St. Louis, Mo., the imago issuing in the middle of April (C. V. Riley).
- Tetraopes tetraophthalmus* (Forst.), larva boring in the root and lower part of the stem of Milkweeds (*Asclepias*), upon which plants all the species of the genus are found (Schwarz; Riley); larva in the soil near the roots of *Asclepias cornuta* (W. L. Devereaux, Can. Ent., 1878, p. 143).
- Dysphaga tenuipes* (Hald.), in dead limbs and twigs of Hickory, the beetle appearing in May (Fitch, 3 Rep., p. 123); in Carya twigs (Haldemann, Proc. Phil. Ac. Nat. Sc., 3, 126).